

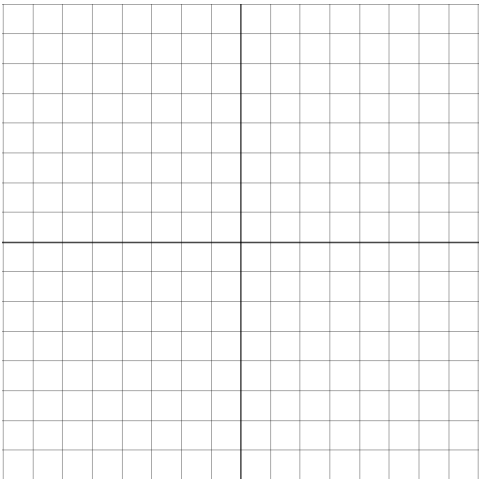
$$h = -\frac{b}{2a}$$

Pre-Calculus 11: Graphs of Quadratics Quiz #2

Full credit will only be awarded for all work shown in a neat and organized manner.

1. Given the parabola: $f(x) = \frac{1}{4}x^2 + 3x - 10$
 - a. Find the axis of symmetry of $f(x)$ by completing the square (*no shortcut allowed!*)
 - b. Find the x-intercepts of $f(x)$ (*give exact answers*)

2. Given the parabola: $f(x) = 3x^2 + 6x - 4$
 - a. Find the vertex of $f(x)$ (shortcut is allowed)
 - b. Find the x-intercepts **and** y-intercept of $f(x)$ (*give exact answers*)
 - c. Sketch $f(x)$ on the grid provided, plotting all intercepts and vertex



a. vertex: _____

b. y-int: _____

x-int(s): _____

3. Mr. Johnston is deciding on a price for Byng Wear sweaters. He is currently selling them for \$52 each and 70 students have ordered them. A survey tells him that by decreasing the price by \$2, 5 more students would purchase the sweater. If Mr. Johnston wants to maximize income,
- what price should he sell the sweater?
 - how much total income will he earn?

4. Lord Byng is constructing a garden next to the school. The garden will have two identical rectangular sections, divided and surrounded by a fence, as shown below. No fencing is needed against the school.

If Lord Byng has 300m of fencing to use:

- what is the **total** maximum area that can be enclosed?
- what are the dimensions of the **total enclosed area**?

